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Mrs. T. G. was admitted to the gynecological ward of the Johns Hopkins Hospital, August 8, 1891, with the following history:

The patient was a Bohemian, 26 years of age, and had been married seven years. She had had three children, and said that she had never miscarried. The oldest child is six and the second four years old; the third child, born in Jan., 1890, died of "summer complaint" at the age of six months. Her labors had been easy; she remained in bed for two days after each, being attended only by a midwife. Her menses first appeared at 16 years of age. They were irregular, lasting usually seven days, and were often profuse and painful; since marriage her menses have been regular, lasting five or six days, being profuse but not painful. In May, 1890, she ceased to menstruate for two months, but in July her menses reappeared and lasted six days. At this time they were profuse and accompanied with a great deal of backache and pain in both ovarian regions. She had never had leucorrhœa; she suffered from constipation. There was no urinary difficulty. The patient remained well until April, 1891, when a hemorrhage from the vagina occurred suddenly and continued for six days. Two hours after the hemorrhage ceased she passed foul-smelling black clots of blood and experienced labor-like pains. During May, June and July she was free from these labor-like pains, but complained during these months of weakness, of occasional chills and fever, of pains in the lower zone of the abdomen, and backache. On admission to the hospital she was

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too weak to walk. The slightest touch over the region of the left ovary provoked intense pain. The temperature on admission was normal; the patient weighed 123 pounds.

At the examination made August 8, 1891, under chloroform narcosis, the following note was made:

Vaginal outlet moderately relaxed; vagina bathed with bloody fluid; cervix small, bilaterally lacerated, pointing upwards; uterus anteflexed, sagging in the pelvis, enlarged, soft and movable. Right broad ligament thickened. Fallopian tube and ovary not definitely palpated.

On the left side a fluctuating tumor is outlined, about the size of an orange, adherent to the uterus.

Diagnosis. Abscess of the left ovary. Treatment advised, cœliotomy.

Urinary analysis. A voided specimen examined on August 9th was turbid, straw-colored, specific gravity 1.020, reaction acid. On standing it deposited a heavy bloody and mucous sediment. On boiling, albumen was found to be present. A large number of red blood corpuscles were revealed by the microscopical examination, as well as numerous epithelial cells both large and small.

A catheterized specimen was cloudy, amber-colored, specific gravity 1.035, reaction acid. Albumen as in voided specimen; mucous sediment not so deeply stained with blood. The microscopical examination gave much the same results as those shown by the previous specimen.

Operation August 12, 1891, under chloroform narcosis.

Incision 7 cm. long through thin abdominal walls. On exploration of the pelvis, the mass previously palpated on the left side was brought into view. It was bound down to the broad ligament, uterus and pelvic walls by dense connective tissue adhesions. The tumor mass was successfully enucleated, but during its delivery a small rupture occurred at the point at which it was adherent to the fimbriated extremity of the Fallopian tube, and a small quantity of purulent fluid, having a strong fœtid odor, escaped. A ligature was immediately tied about the rent, thus preventing the escape of more fluid. The remaining portion of the Fallopian tube, although not adherent, was enlarged and thickened. The tumor mass was transfixed and ligated below the round ligament, after which it was excised and the pedicle cauterized.

The Fallopian tube and ovary of the right side being bound down by only a few adhesions, were enucleated without difficulty. The fimbriated extremity of the tube was occluded, enlarged and thickened. The ovary appeared inflamed, but was not enlarged. The tube and ovary were removed by transfixion and the pedicle was cauterized. The pelvic cavity was irrigated with three litres of a sterilized salt solution at a temperature of 112° F. and sponged dry.

A drainage tube was inserted in the lower angle of the wound and the usual dressings applied. Time of operation, 40 minutes.

The specimens removed consist of the tube and ovary of the right side, which are covered with villamentous adhesions, and the tube and ovary of the left side, which are encapsulated in connective tissue-like adhesions.

VIII-13-91. First dressing. The gauze plug in the drainage tube is thoroughly saturated with a dark bloody discharge, and streaked with a fluid resembling pus. Tube cleansed with 20 pledgets of cotton, the last three pledgets being but faintly stained. The discharge had a decided odor of decomposition.

The cotton immediately over the drainage tube was slightly moistened with the same character of secretion as that seen upon the plug and upon the cotton pledgets.

Abdomen flat, no distension, general condition good, usual cultures taken.

VIII-14-91. Second dressing. Slight amount of fluid on cotton over the drainage tube; plug in tube moistened by a clear fluid holding a clot of blood at the lower end. On the gauze plug there are white opaque points of lymph, corresponding in position to the perforation in the drainage tube. The fluid has the same odor of decomposition. Tube cleansed with twelve pledgets of cotton, which when withdrawn were stained with a serum-like fluid, the two last being hardly soiled at all. Drainage tube removed and a plug of iodoformized gauze inserted down the track of the tube. Abdomen flat, general condition good; usual cultures taken.

VIII-15-91. Third dressing. Gauze removed from the tube track; moistened; not as much odor. Track of tube cleansed with peroxide of hydrogen. Abdomen flat, general condition good. Gauze reapplied to wound, but not down

the track; abdomen sensitive. Gauze impregnated with permanganate of potassium and oxalic acid applied over the protective dressing and track of the tube.

VIII-19-91. Fourth dressing. Stitches removed. Line of union good; some suppuration about the track of the tube. General condition good.

VIII-26-91. Fifth dressing. Small amount of creamy fluid escaped from the track of the tube. Line of incision in good apposition and well united.

Analysis of temperature chart.—The temperature was taken for ten days after the operation by the mouth, rectum and vagina. The highest point registered was that on the fourth day, when it was 102° F. by the rectum, 101.8° F. by the vagina, and 101.2° F. by the mouth. After this it was never above 101° F. and on the 9th day registered 100.5° F.

Bacteriological examination.—The following cultures were made from the left Fallopian tube and abscess cavity: Two sets of Esmarch's roll plates on agar-agar, one smear and one stab culture in the same medium; a blood-serum tube (bullock's blood) and a litmus milk tube. From the right Fallopian tube, which was distended by a muco-purulent, rather viscid looking fluid, we only made gelatine Esmarch's roll plates.

Microscopical examination.—Cover-slips stained with gentian violet show numerous polynuclear leucocytes, with compound granular bodies, and a few cells with large round nuclei resembling epithelial cells. Many bacilli were observed; they were rather faintly stained, and were seen only occasionally within the leucocytes. These bacteria were stained best with carbolic gentian violet.

Numerous rod-shaped bacilli were found in the preparation from the Fallopian tube on the right side. Though less intensely stained, they resemble tubercle bacilli somewhat morphologically. They are, however, completely decolorized when treated after the method of staining for the latter organisms. It is to be noted that the organisms were very numerous in the specimen from the point at which the cultures were made.

After 48 hours in the thermostat all tubes were sterile, except the blood serum slants, which showed an opaque, very faintly granular growth, apparently due to closely set colonies.

Only the growths from the two inoculations from the abscess contents were considered reliable for study. Inoculations were made from these on the agar-agar, blood serum, potato and gelatine. Examined microscopically they proved to be pure cultures of a bacillus.

All these tubes showed growth after 24 hours on agar; very faintly after 48 hours on gelatine, on account of the lower temperature, but more distinctly on the latter on succeeding days. The appearance of the colonies in gelatine corresponded to that presented by the bacillus proteus, a fact suggested by Dr. Booker and confirmed by Dr. Welch. These colonies showed the typical twisted wandering offshoots (schwärmende Colonien) characteristic of the proteus group. The gelatine was not liquefied.

Cultures from the Drainage Tube.—First dressing 24 hours after operation. Roll plate, agar-agar, Esmarch's tubes. The colonies on the tubes from the gauze plug were composed of the skin-coccus. Microscopical examination of stained cover-glass preparations from the secretion showed a few diplococci, and numerous bacilli identical with those found in the abscess cavity. The coccus grew on potato and in bouillon with the characters of the streptococcus pyogenes albus, but liquefied gelatine, though less rapidly than this organism.

The inoculation of a guinea-pig subcutaneously in the flank with the serum-like secretion from the gauze plug was without result.

Further inoculations from the drainage tube on bullock serum were not made, as the supply of culture medium was exhausted.

The case is of unusual interest on account of the results of the bacteriological examination. The bacillus proteus vulgaris (variety Zenkeri?) was found in cultures from the abscess cavity in the left ovary, and on cover-slips in the right Fallopian tube. In all our previous examinations of abscess cavities, cysts and Fallopian tubes, we have never met with another instance in which it was present.

Macroscopical and microscopical description of specimens from the Pathological Laboratory of the Johns Hopkins Hospital, by Dr. J. Whitridge Williams.

Appendages on both sides. Left side: Tube 6 by 0.7 by

1 cm. Fimbriated end thickened and adherent to ovary, but not occluded; some portions are still bound down to the ovary, but at other places the adhesions have evidently been torn loose during the operation. On section it is seen that the mucosa is much thickened and resembles a pyogenic membrane. The characteristic folding has disappeared. Scattered through it here and there are areas which appear decidedly caseous.

The ovary is converted into a pus sac 5.5 cm. in diameter. The greater part of its exterior is smooth, though signs of several dense adhesions are observed. On the surface are a few dilated follicles. The abscess wall varies from 0.5 to 1 cm. in thickness, its interior being lined by a characteristic pyogenic membrane 2 to 3 mm. thick. Externally it is glistening and presents many circular elevations, 1 to 5 mm. in diameter, which are raised only a few mm. above the general surface. These are found to be movable and to represent tags of tissue. On section, the pyogenic membrane is readily divided into two layers; the one nearer to the pus cavity being opaque, thicker, of a yellow color, and having a tuberculous aspect (?); the other, lying next the ovarian stroma, is lighter in color, more translucent, and considerably thinner than the inner coating.

Cover-slips from the pus show many thick bacilli, but no tubercle bacilli.

Right side: Tube 5 by 0.4 by 1.2 cm.; fimbriated end occluded; many adhesions. Ovary 3 by 3 by 1.5 cm. Many adhesions on surface. On section, the ovary is succulent and contains an oldish corpus luteum and a small corpus luteum cyst, 5 mm. in diameter, with white opaque walls 1 mm. thick and with a glistening interior. There are also several follicles with hemorrhagic contents.

Microscopical examination. The left tube presents a marked purulent salpingitis, the folds of its mucosa being infiltrated with leucocytes and round cells. In places the epithelium is swollen and breaking down, and in others has entirely disappeared, affording a picture which beautifully illustrates the liquefaction of tissue.

There is also a marked endarteritis.

Sections through the wall of the ovarian abscess show that

the portion adjacent to the cavity contains many newly formed blood-vessels; it is filled with leucocytes and most beautiful fibroblasts, which are rapidly proliferating, nuclear figures and cell division being well seen.

In this portion the connective tissue bands are hardly visible. As we recede from the abscess cavity we find fewer leucocytes, more fibroblasts and connective tissue, until we gradually approach characteristic ovarian tissue.

The bacillus corresponds morphologically to the bacillus proteus Zenkeri, and stains well with methylene blue, and does not entirely decolorize with the Gram or Weigert stain. It may be observed in the abscess walls as a bacillus of varying lengths and in forms simulating cocci. The fibroblasts are strikingly like the large cells of the corpus luteum.

In a contribution to the subject of the proteus vulgaris in abscesses, Hauser[1], besides the report of his own case, gives a résumé of the instances previously reported by other writers. Hauser's case is that of an adult who had a series of abscesses in the hand, following an injury from one of the autopsy instruments. The pus, which was of an ichorous and stinking character, contained both the streptococcus and proteus. The suppuration was regarded as induced by the streptococci, and the peculiar character of the contents of the abscesses was attributed to the presence of the proteus.

Beck[2] reports several cases of puerperal endometritis in which the proteus vulgaris was found, and one case of purulent peritonitis, following total extirpation of the uterus for carcinoma, in which the presence of the same organism was demonstrated.

Finally, Döderlein[3] reports that in the lochia of puerperal women he has often found bacilli which cause a rapid liquefaction of gelatine; but from his brief description one is not able to say whether or not he was dealing with the proteus.

It seems fair to assume that our patient had a puerperal endometritis following the abortion which occurred last April, and that the infection subsequently involved the Fallopian tube and ovary.

The proteus Zenkeri, which he classifies among the anaërobes of putrefaction, is described by Hauser[1] as follows: The organisms 0.4 in breadth, and of an average length of 1.65;

in some instances the forms are rounder, at other times longer. After inoculation on gelatine, a layer which towards the periphery becomes thinner and has the appearance of the steps of stairs, is formed around the point of inoculation, and from the margin of this layer numerous threads and rods begin to pass out; after 24 hours we find large numbers of moving islands, composed of rods and threads presenting exactly the same appearance as in the case of proteus mirabilis. The deposit becomes gradually thicker and opaque, but no liquefaction of the gelatine occurs except sometimes quite at the surface. The formation of spirilla is seldom observed. Cultures in gelatine and blood serum do not show any marked odor; meat infusion, on the other hand, is decomposed by the organism with the production of a strong smell. In its other effects the proteus Zenkeri resembles the proteus mirabilis and the proteus vulgaris, and as Hauser[1] has pointed out, there is probably only one species of proteus, the vulgaris, of which the other forms are to be regarded as simple physiological variations.

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